

We Claim:

1. An apparatus for detecting a material of a surface of a flat object on a stack of flat objects, the apparatus comprising:

a sensor apparatus containing a sensor carrier, sensor electronics, and sensor electrodes resting on the surface of the flat object and conducting a measuring current through the surface of the flat object, said sensor carrier supporting said sensor electrodes, and said sensor electronics connected to said sensor electrodes.

2. The apparatus according to claim 1, wherein an electrical resistance in the surface of the flat object is measured with the measuring current.

3. The apparatus according to claim 1, wherein said sensor electronics contain a frequency generator connected to said sensor electrodes, a rectifier connected to said sensor electrodes, a measurement amplifier connected to said rectifier, comparators connected to said measurement amplifier, and an evaluation unit connected to said comparators.

4. The apparatus according to claim 1, said sensor electronics contain a controllable-frequency frequency

generator connected to said sensor electrodes, a rectifier connected to said sensor electrodes, a measurement amplifier connected to said rectifier, an analog-digital converter connected to said measurement amplifier, and a control and evaluation unit connected to said analog-digital converter.

5. The apparatus according to claim 3, wherein said sensor electronics has a short-circuit detector connected to said sensor electrodes.

6. The apparatus according to claim 1, wherein said sensor apparatus detects a surface type of the surface of the flat object as being one of paper, an exposure layer of a printing plate, metal and 'no object'.

7. The apparatus according to claim 1, further comprising a loading device for printing plates, and said sensor apparatus is integrated into said loading device.

8. The apparatus according to claim 7, further comprising a lifting device having suction elements for gripping the printing plates, said sensor apparatus being integrated into said lifting device.

9. The apparatus according to claim 4, wherein said sensor electronics has a short-circuit detector connected to said sensor electrodes.

10. The apparatus according to claim 1, wherein the flat objects are individually separated from one another in the stack by interlayers.

11. The apparatus according to claim 10, wherein the flat objects are printing plates.

12. A method for detecting a material of a surface of a flat object on a stack of flat objects, which comprises the steps of:

using sensor electrodes resting on the surface of the flat object and connected to sensor electronics for conducting a measuring current through the surface of the flat object.

13. The method according to claim 12, which further comprises generating the measuring current with a frequency generator, and the frequency generator applying a high-frequency voltage to the sensor electrodes.

14. The method according to claim 12, which further comprises using the measuring current for measuring an electrical resistance of the surface of the flat object.

15. The method according to claim 12, which further comprises:

converting the measuring current into a measuring voltage; and

recognizing the material forming the surface from a voltage range in which the measuring voltage lies.

16. The method according to claim 12, which further comprises:

varying a frequency of the measuring current using a controllable frequency generator; and

carrying out a plurality of measurements at different frequencies.

17. The method according to claim 16, which further comprises evaluating measuring voltages determined from the plurality of measurements to detect the material of the surface.

18. The method according to claim 12, which further comprises determining the surface to be a surface type selected from the group consisting of paper, an exposure layer of a printing plate, metal, and 'no object'.

19. The method according to claim 12, which further comprises using interlayers for individually separating the flat objects from one another in the stack.

20. The method according to claim 19, which further comprises using printing plates as the flat objects.